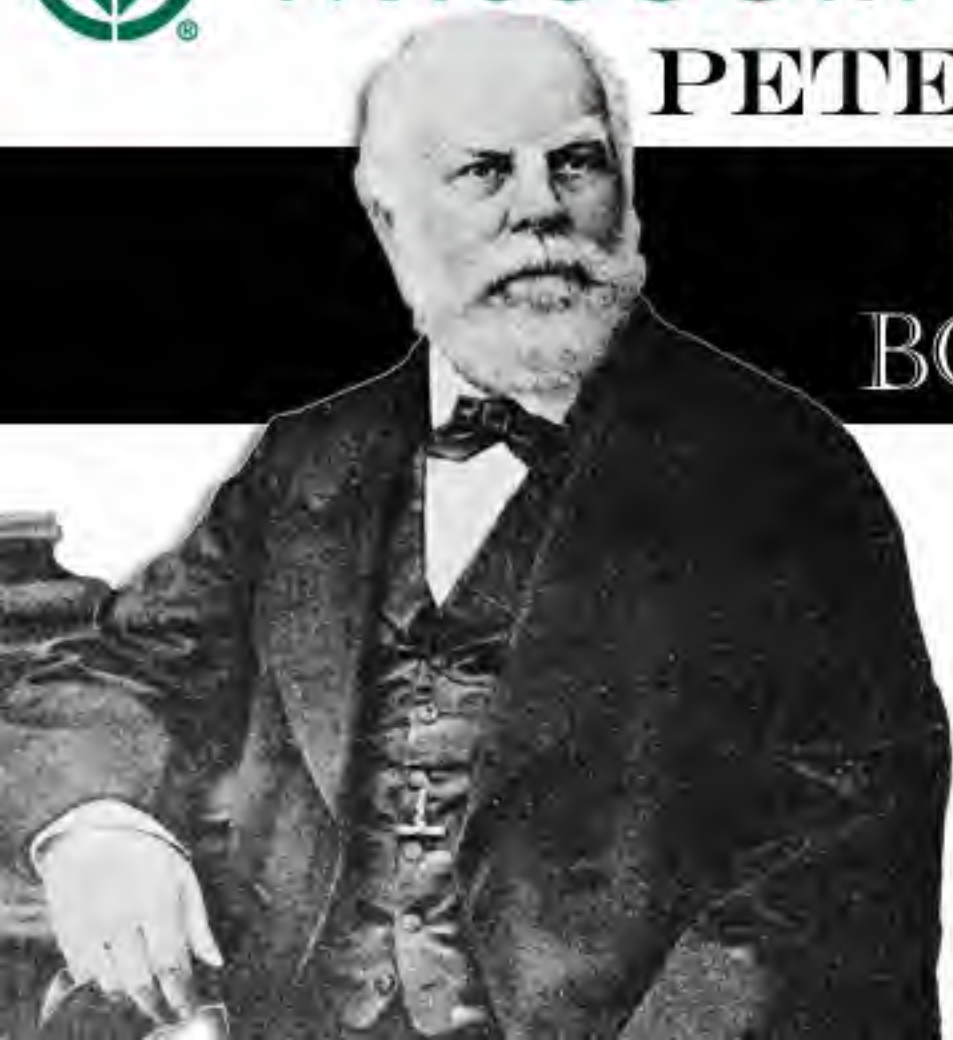


PETER H. RAVEN LIBRARY

GEORGE ENGELMANN  
BOTANICAL NOTEBOOKS



*Pagination Note:*

*Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.*



1866

*A. Concolor*

Rosky Mt.



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12593

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*

Sept 28 75

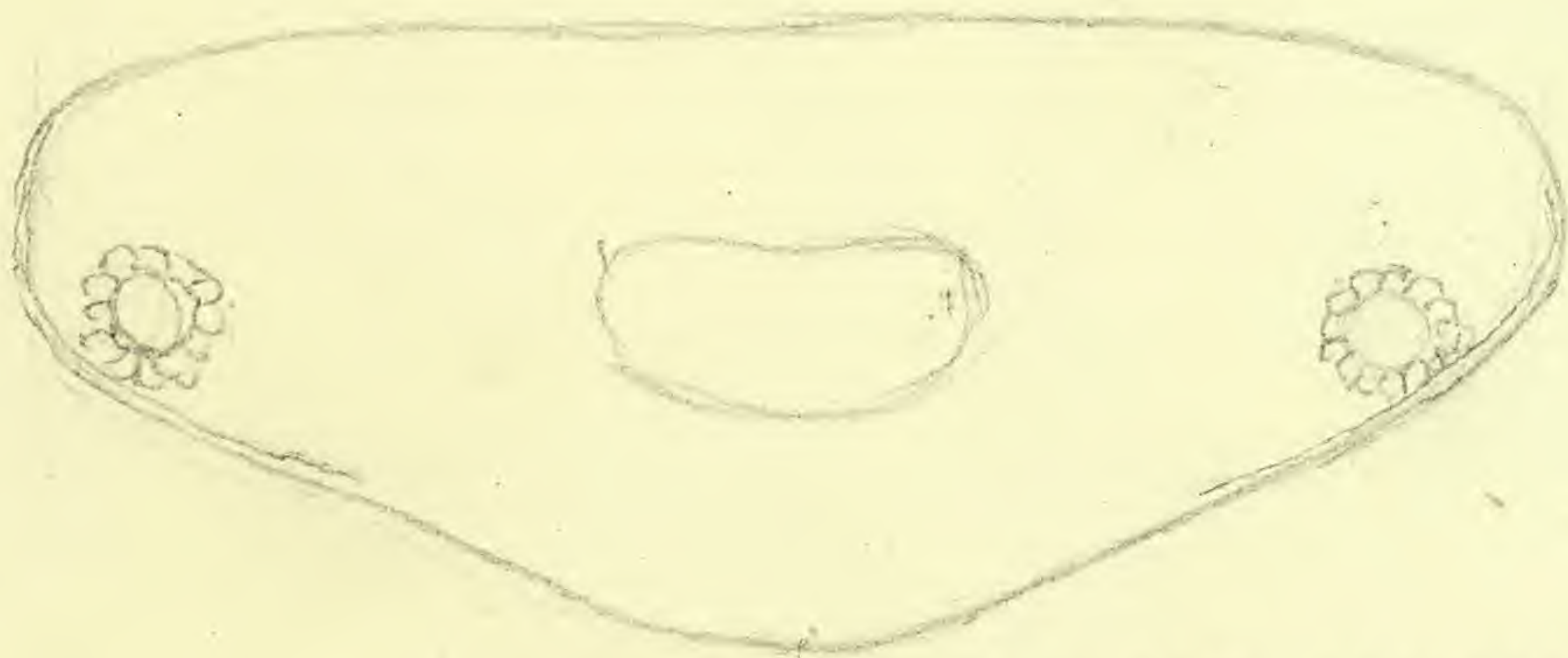
T. S. Brandegee

Summit of Mosca Pass (Sangre de  
Christo)

9000' alt

Sept 1875

x 30



resinous ducts on the under side of the leaf  
towards the margin, close to the cortical layer of  
surrounded by green parenchymatous cells  
only partially



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12594

Wirth & Carlitz

DRUGGISTS

South-west  
Corner Fifth and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*

Nov 18 1877

S. lower Mountain

Sierra Nevada

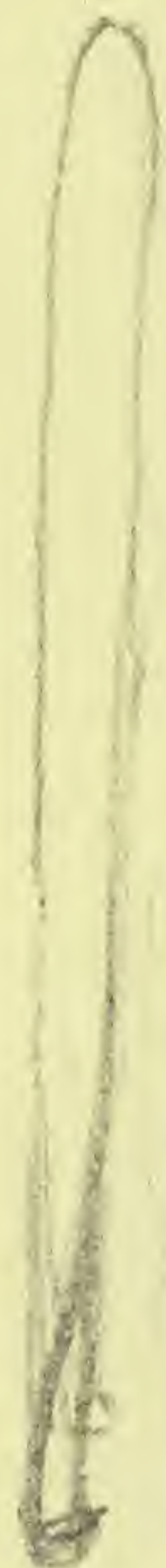
A. Gray 1877

x30

about 16 lines of striae above



7-8 lines of striae +  
each band



collected by  
A. Gray  
Sierra Nevada  
Nov 18 1877



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12595

Leitch & Corlies

Druggists

South West  
Corner Fifth  
and Market  
Streets.

MISSOURI BOTANICAL GARDEN

GEORGE ENGELMANN PAPERS  
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Pinus concolor*

Nov 18 1877

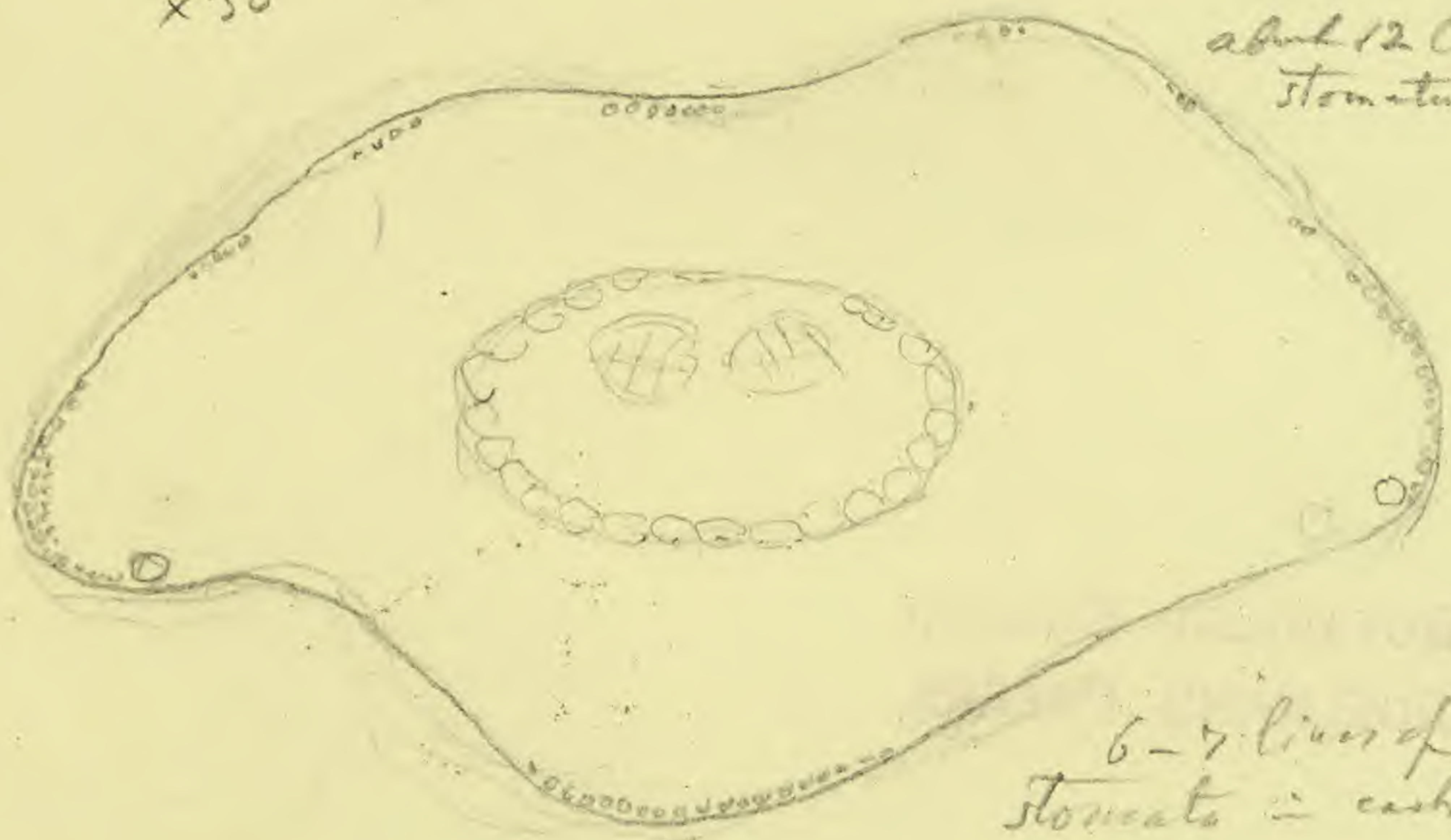
base of Shasta Mtn

leaf near base of cone

x30

about 12 lines of  
stomata above

Alfred 1877



6-7 lines of  
stomata in each band



scale  
16 x 9 1/2 lin



seed  
reconstructed

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS  
VOLUME 12  
PAGES 1-100



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12596

Leitch & Corlies

DRUGGISTS

South West  
Corner Fifth  
and Market  
Streets.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Nov 18 1877

*Abies concolor*

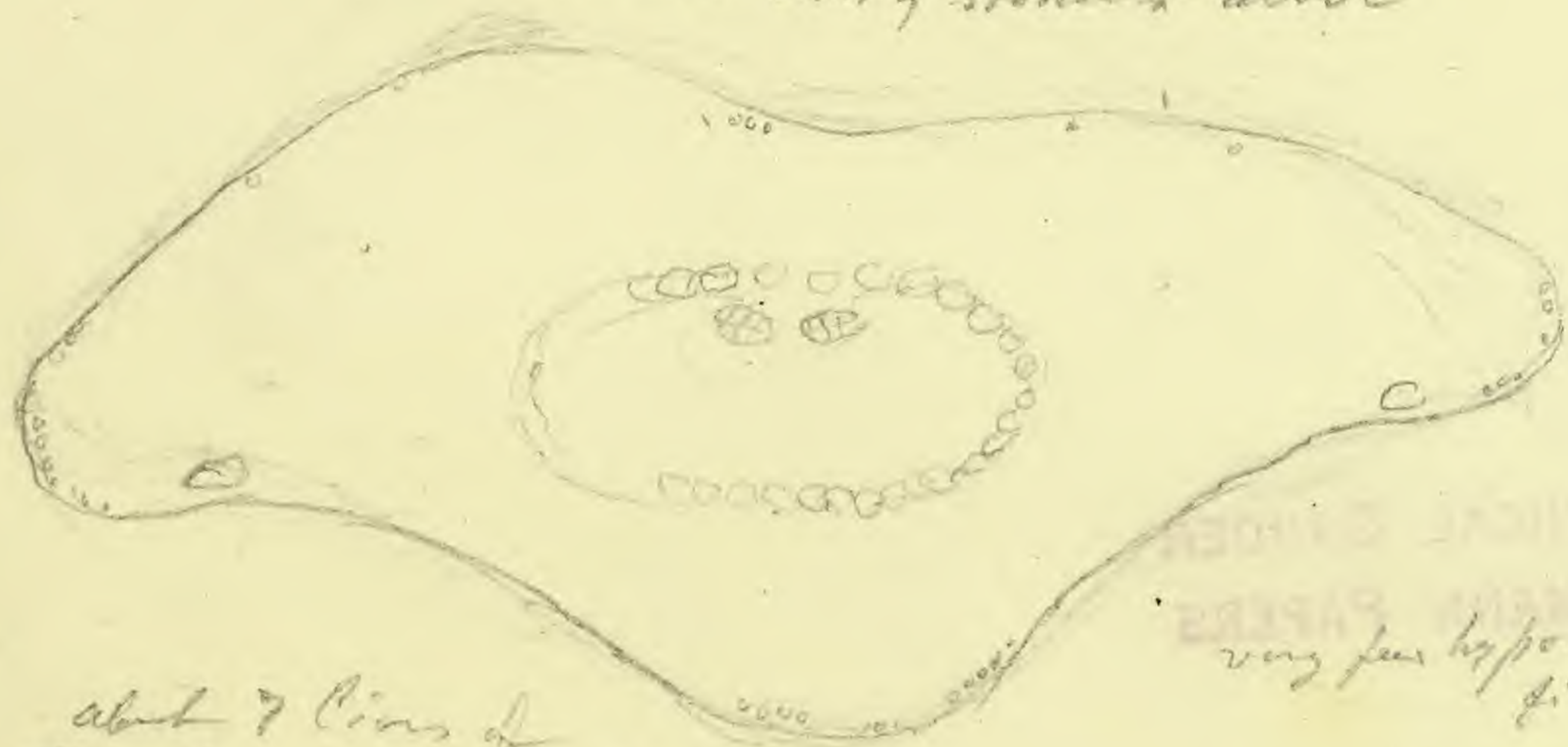
x 30

La Veta Pass,

South

Colorado

18-20 lines of stomata above



about 7 lines of  
stomata in each band

very few hypodermis  
fibres



Ag. 1877

ST. LOUIS

W. B. ALLEN, 1877

ST. LOUIS, MO.

W. B. ALLEN, 1877

W. B. ALLEN, 1877



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Deutsche Apotheke.

—  
GEO. DRE.

Ammonia

No. 3610 North 10th Street,  
Between Mallinckrodt and Salisbury, ST. LOUIS, MO.

No. 187

For

Rp.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12597



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



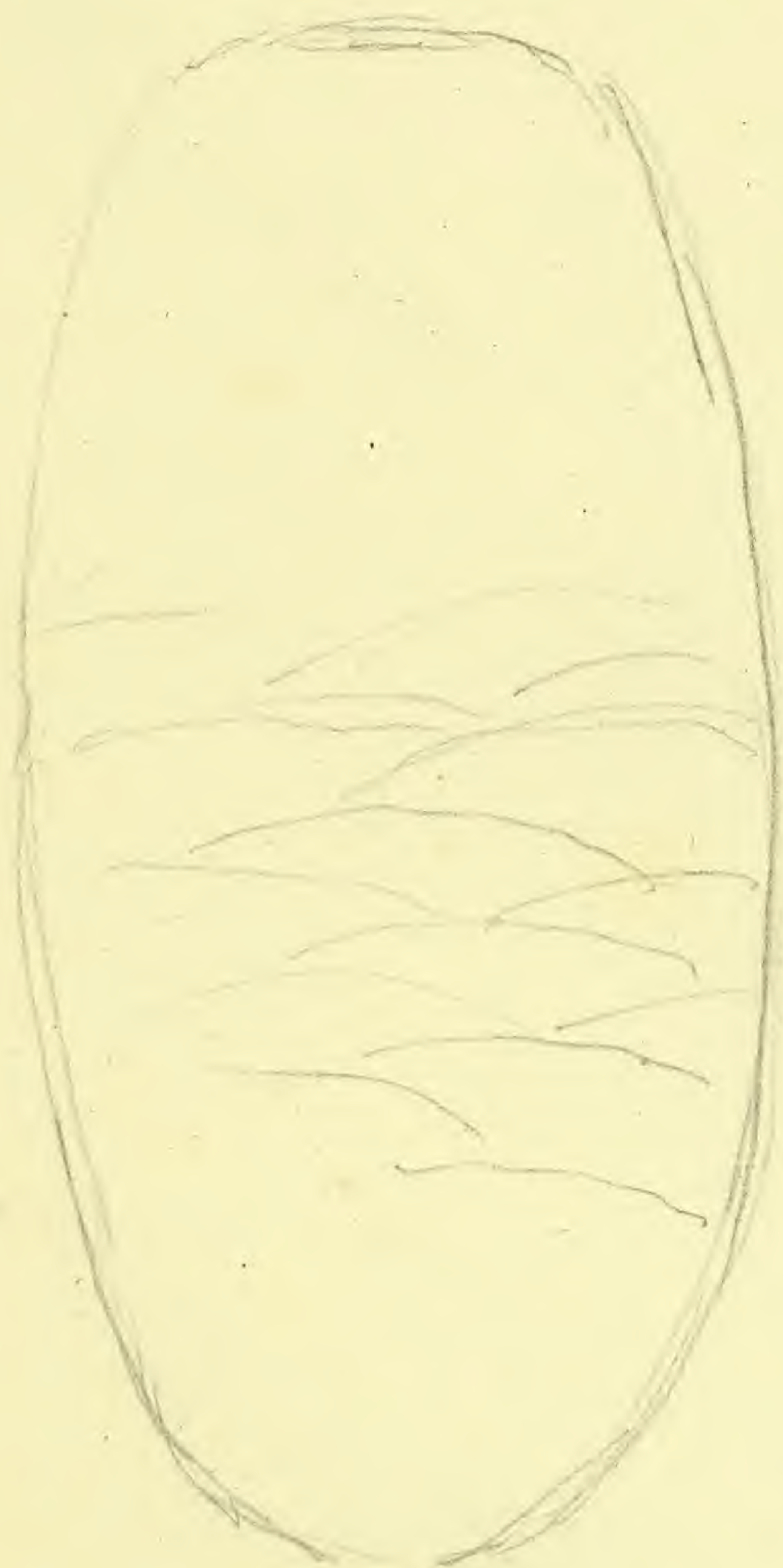
MISSOURI  
BOTANICAL  
GARDEN



*Abrus concolor*

Dec 10 1874

AS Siler, Kane Co, Utah Aug 17 1874



wing wide 11-12 <sup>mm</sup>  
long 9-11  
seed long 9-10

x2



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



HENRY EHRHARDT,  
PHARMACEUTICAL CHEMIST,

No. 301 South Fifth Street, Cor. Myrtle, ST. LOUIS.

No.

Date

187

*Rx*

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12598



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*

Dec 17 1876

*strobilis acutis*

Nov 1874

x4



x4



section  
of seed

Colylids 5-7  
mostly 6



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12599

R. C. HARRISON,

508 Leffingwell Avenue,

Druggist & Apothecary

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

G. F. ENGLEMAN, M.D.,  
3003 LOCUST STREET.



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Colorado

Glen Lyric Sept 21 1874

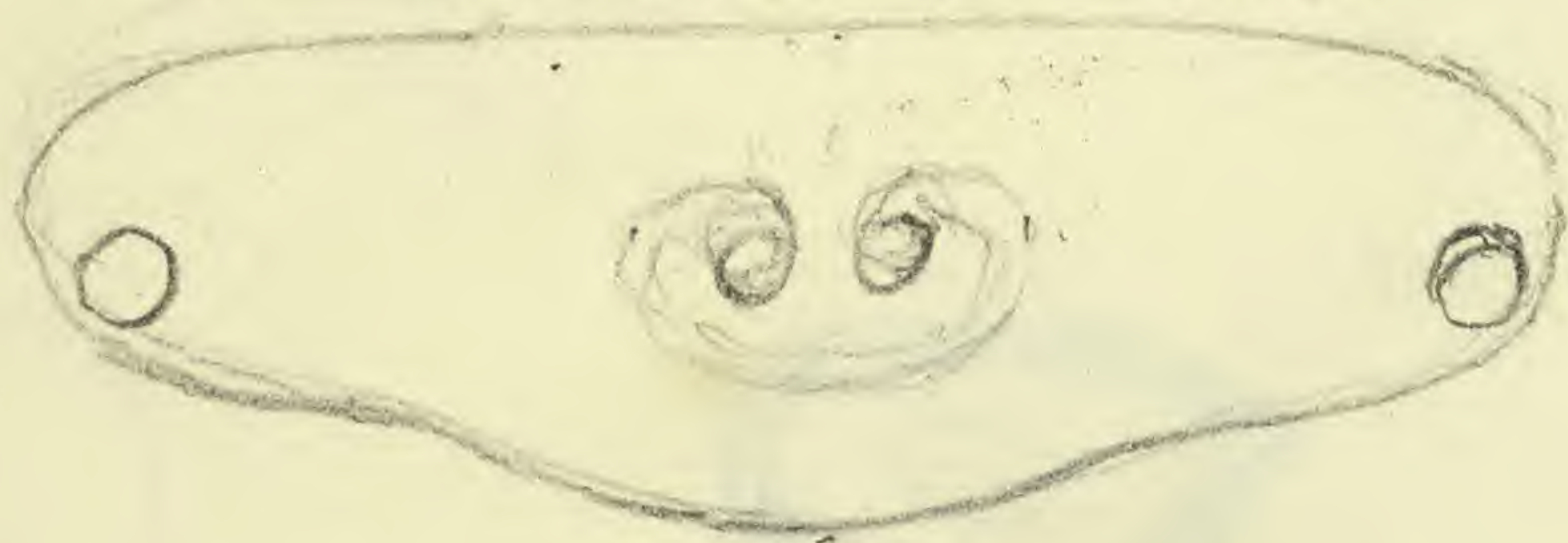
*Abies concolor*

Glen Lyric, near Colorado Springs, Col

Sept 30 1875

G. E. Sept 1874

stomata abundant



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



44  
leafy  
fruit  
R. C. HARRIS

508 Leffingwell Avenue,

**D**ruggist & **A**pothecary

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12600  
G. F. ENGLEMAN, M.D.,  
3003 LOCUST STREET.



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Colorado

*Abies concolor*

Glen Lyric Sept 21 1874

Octob 18 1874



transverse section of  
seed x 4 with embryo  
albumen, oil vesicles  
and coating of the  
half closed base of wing)



section



embryo  
X 4



better

5 cotyled

6 Cotyl

Druggist & Apothecary



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



HENRY EHRHARDT,  
PHARMACEUTICAL CHEMIST,

No. 301 South Fifth Street, Cor. Myrtle, ST. LOUIS.

No.

*Rx*

Date

187

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12601



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abris concolor*

sent by J. E. Johnson, St George, Utah

Dec 8 1874



x2



top



base



wing 9-10 mm wide  
8-9 mm long  
seed 7-8 mm long

scales in 8/21 order or  
13/34



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12602



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*

Dec 8 1874

sent by J E Johnson, St George, Utah



order 13/34



top



base



6 Cotyl

wing 9-10 mm  
8-9 long  
seed 8 mm long

9-10  
8-9



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



HENRY EHRLHARDT,  
PHARMACEUTICAL CHEMIST,

No. 301 South Fifth Street, Cor. Myrtle, ST. LOUIS.

No.

Date

187

*Rx*

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12603



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



x 280  $\frac{34}{280} = 0.12$  mm

*Abies concolor*

St George, Utah

June 27 1874

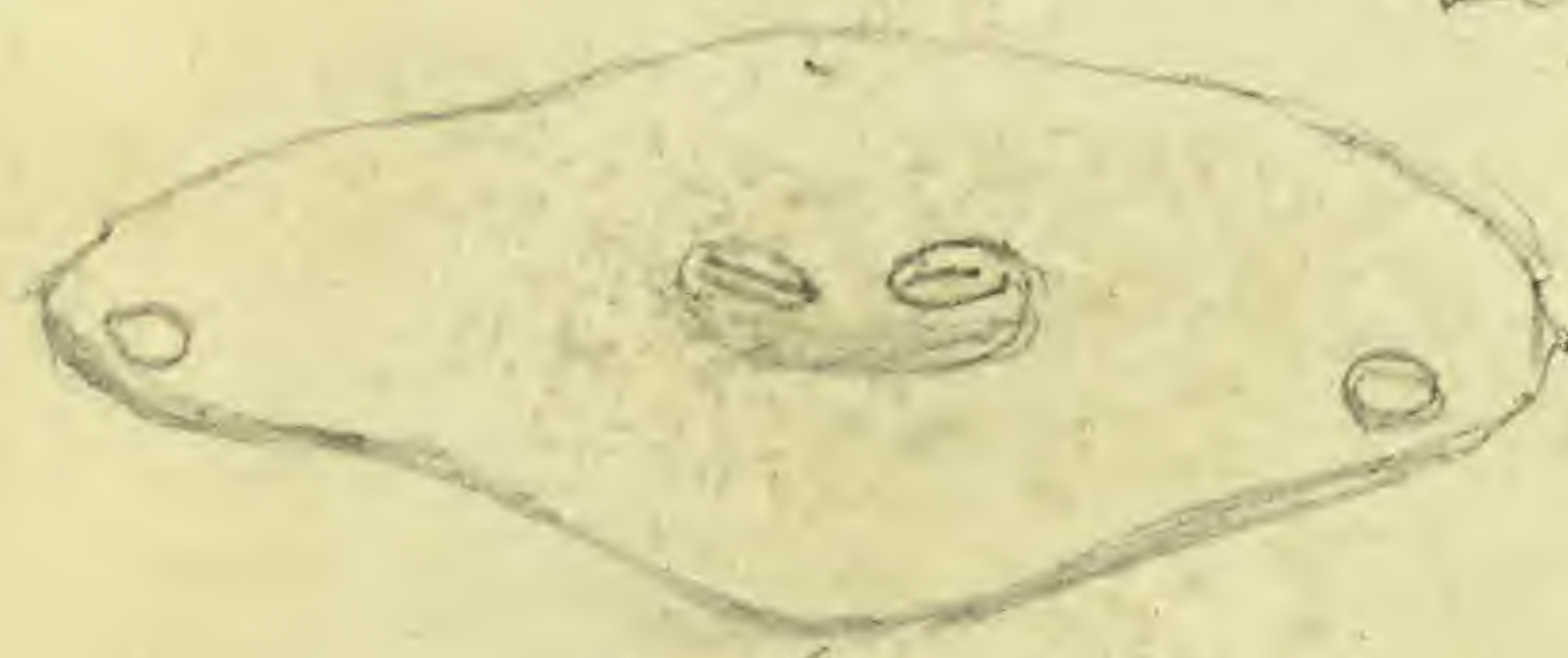
Pollen



28-35  
mostly 31-34  $\times 280$   
 $= 0.10 - 0.125$   
mostly 0.11-0.12  
mm

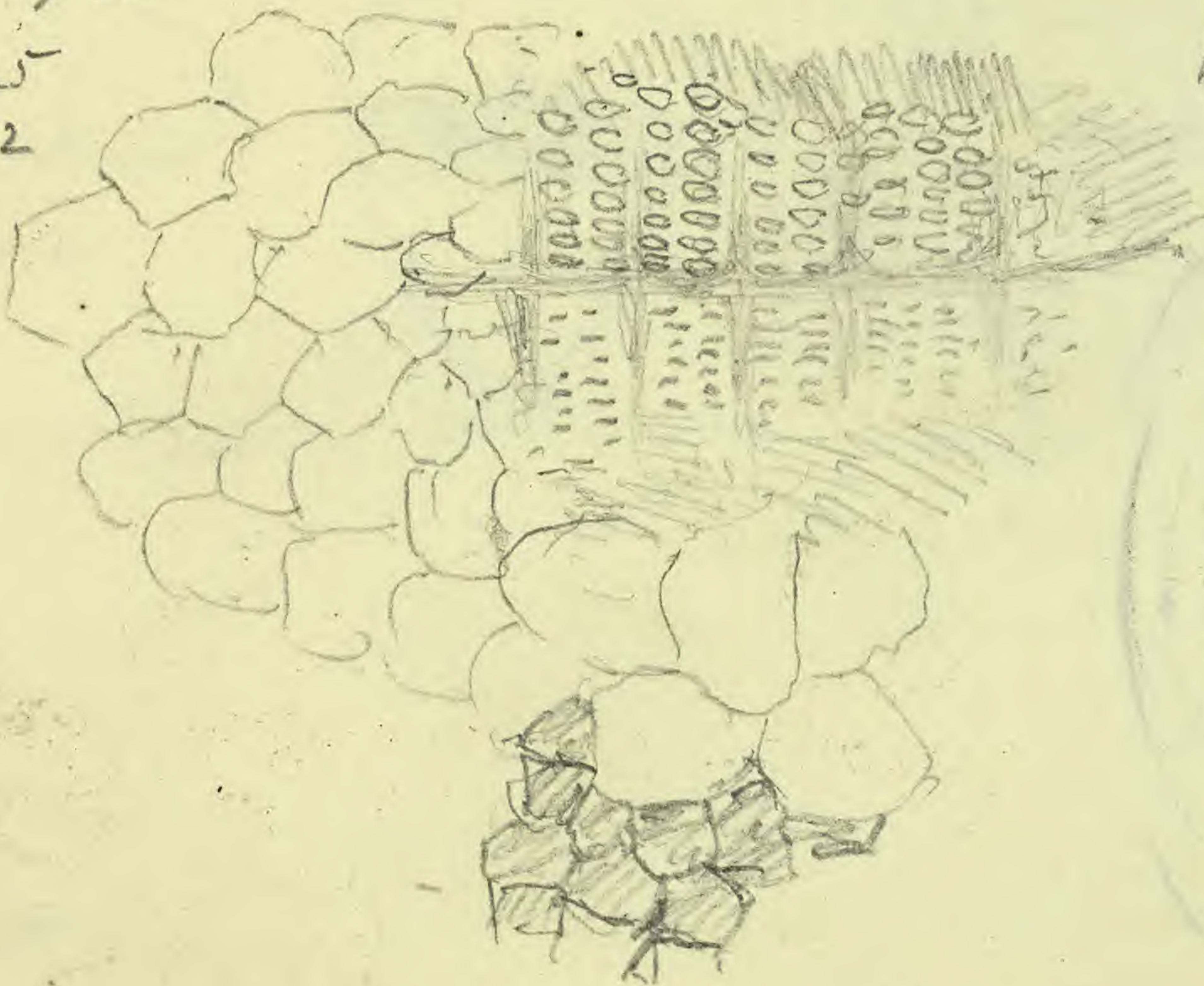
Pollen x 415  $\frac{47}{415} = 0.11$  mm

Pollen 0.10-0.12 mm long



sections of  
different leaves

x10



fibrous bundle of  
right side (a)  
with the empty  
transparent cells  
around it

x280



0  
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN







*A. concolor*

Nguyen

July 2<sup>nd</sup> 1891

Stamen

anther x10

Stamen



inside of  
scale & bract  
of ♀



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN

Cor. Fifth & Market Sts. ST. LOUIS, MO.  
J. McKittrick & Co 36 N. 4th St.



Deutsche Apotheke.

HENRY DIERS,  
APOTHECARY,

South East Corner Fifth and Biddle Streets,  
ST. LOUIS. MO.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12605

04



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Aconcolor*

Jan 29 1876

Povo Utah, Parry 1874

x 150

one of the broadest  
and stoutest leaves



lower keel



upper keel

few and scattered  
hypodermis cells  
often fewer than here



x 30

hypodermis not always  
so crowded on  
edges



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Alex. Leitch,  
APOTHECARY & CHEMIST,

Cor. 4<sup>th</sup> & Olive Sts., St. Louis.

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12606



0

1

2

3

4

5

6

7

8

9

10

cm

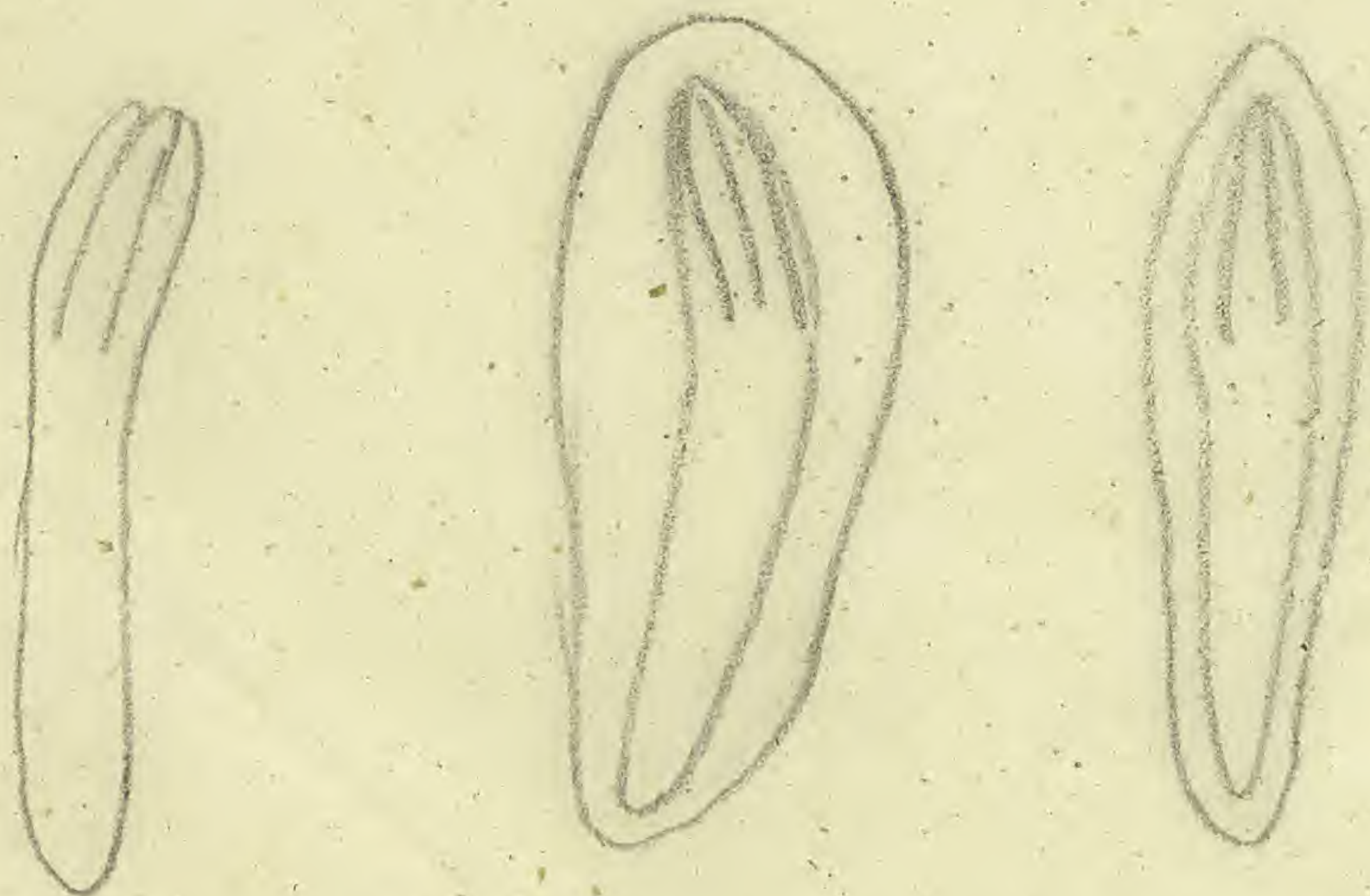
copyright reserved



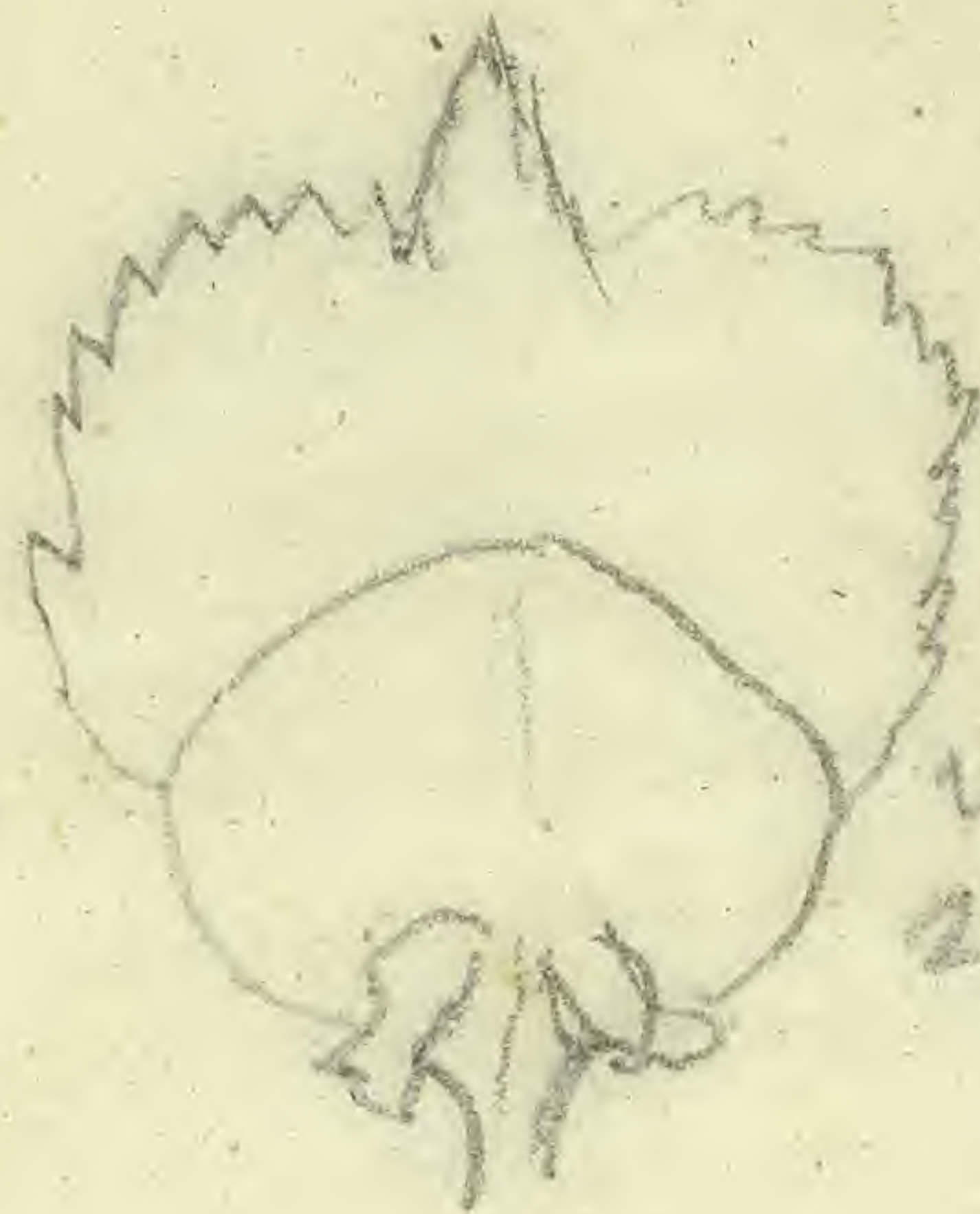
MISSOURI  
BOTANICAL  
GARDEN



15803



only 5-7  
minutely



inside of  
seeds + fruit

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

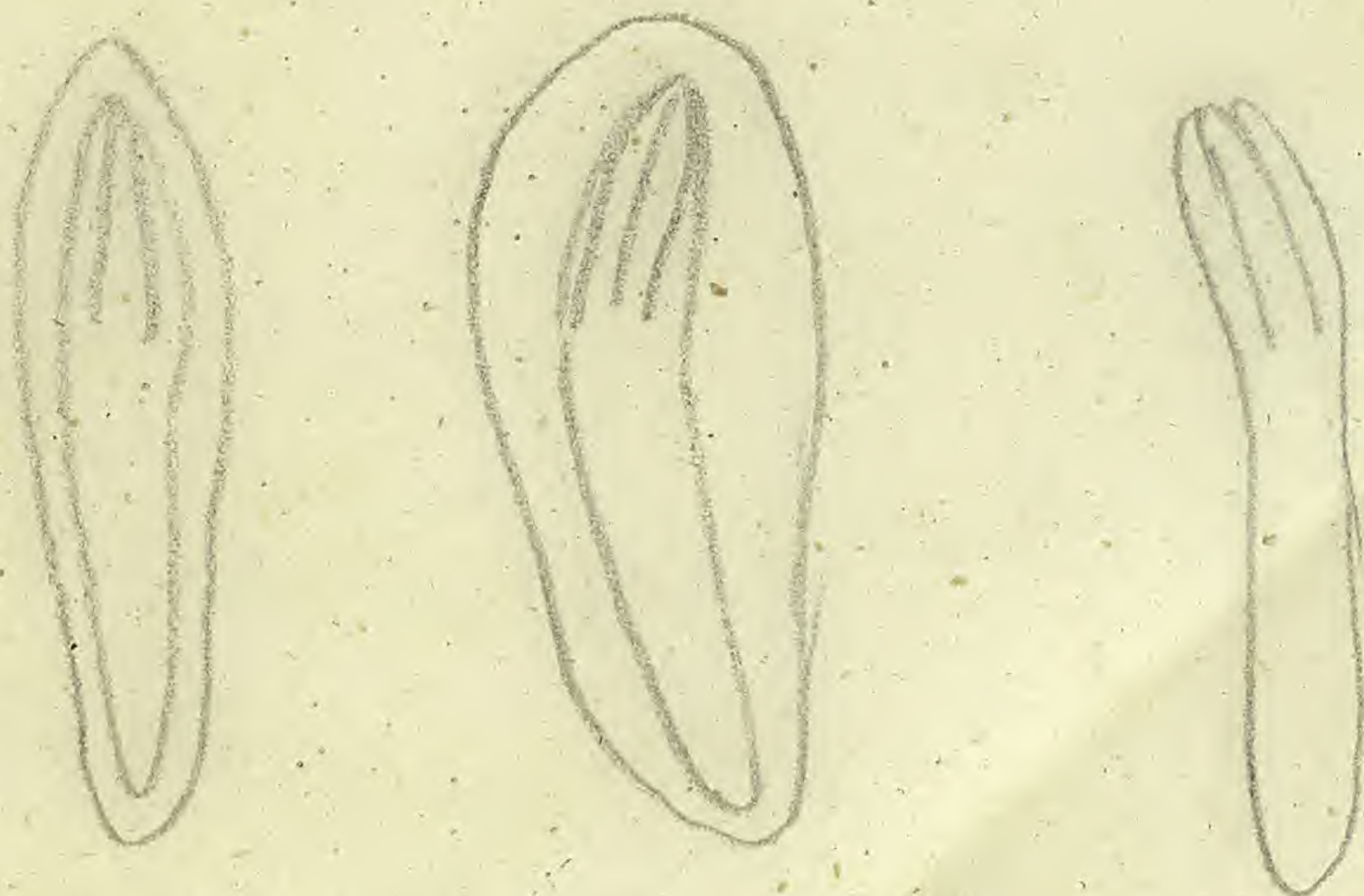
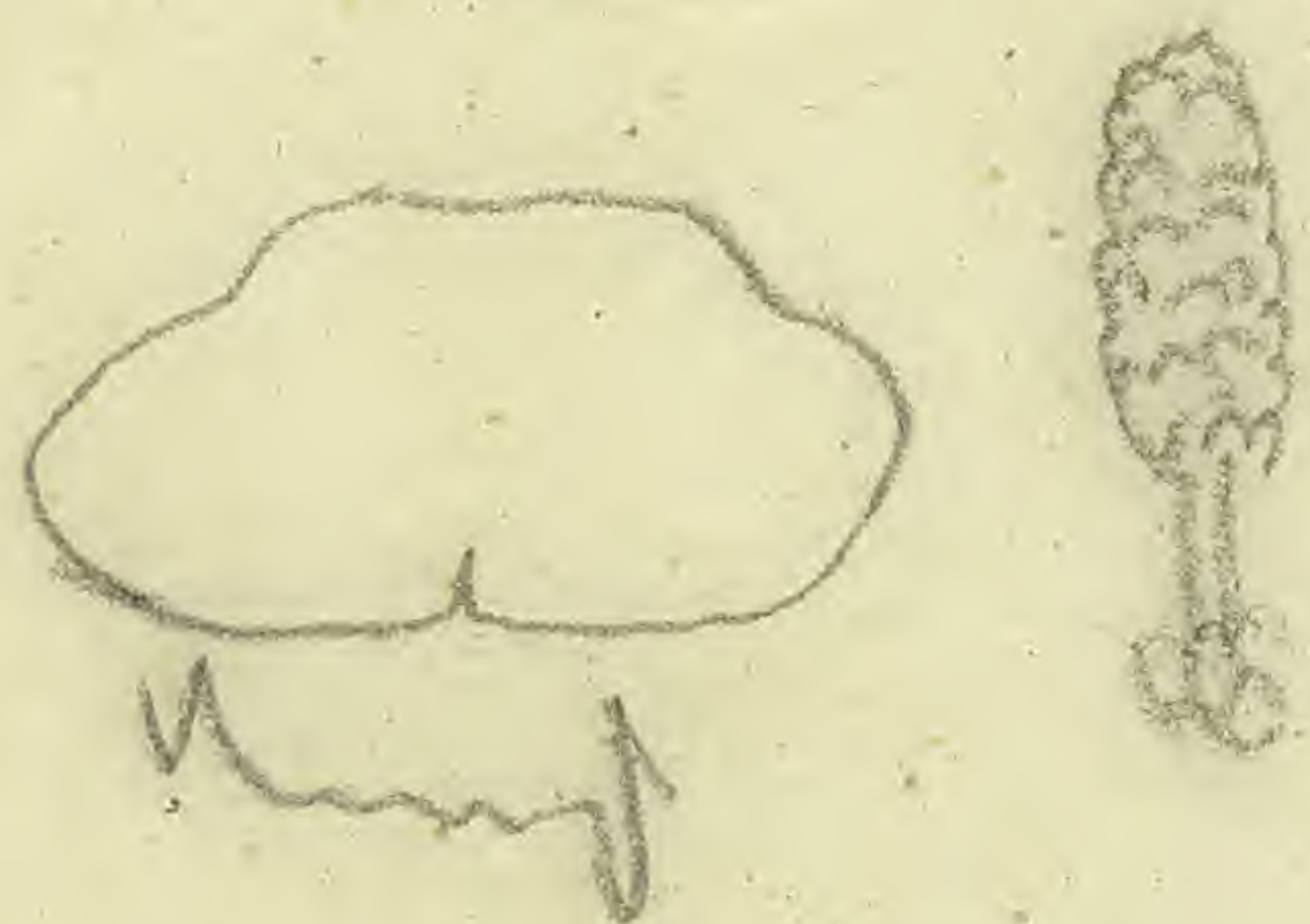
copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12607



5-8 ped  
f. minor

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



original

Abies concolor !

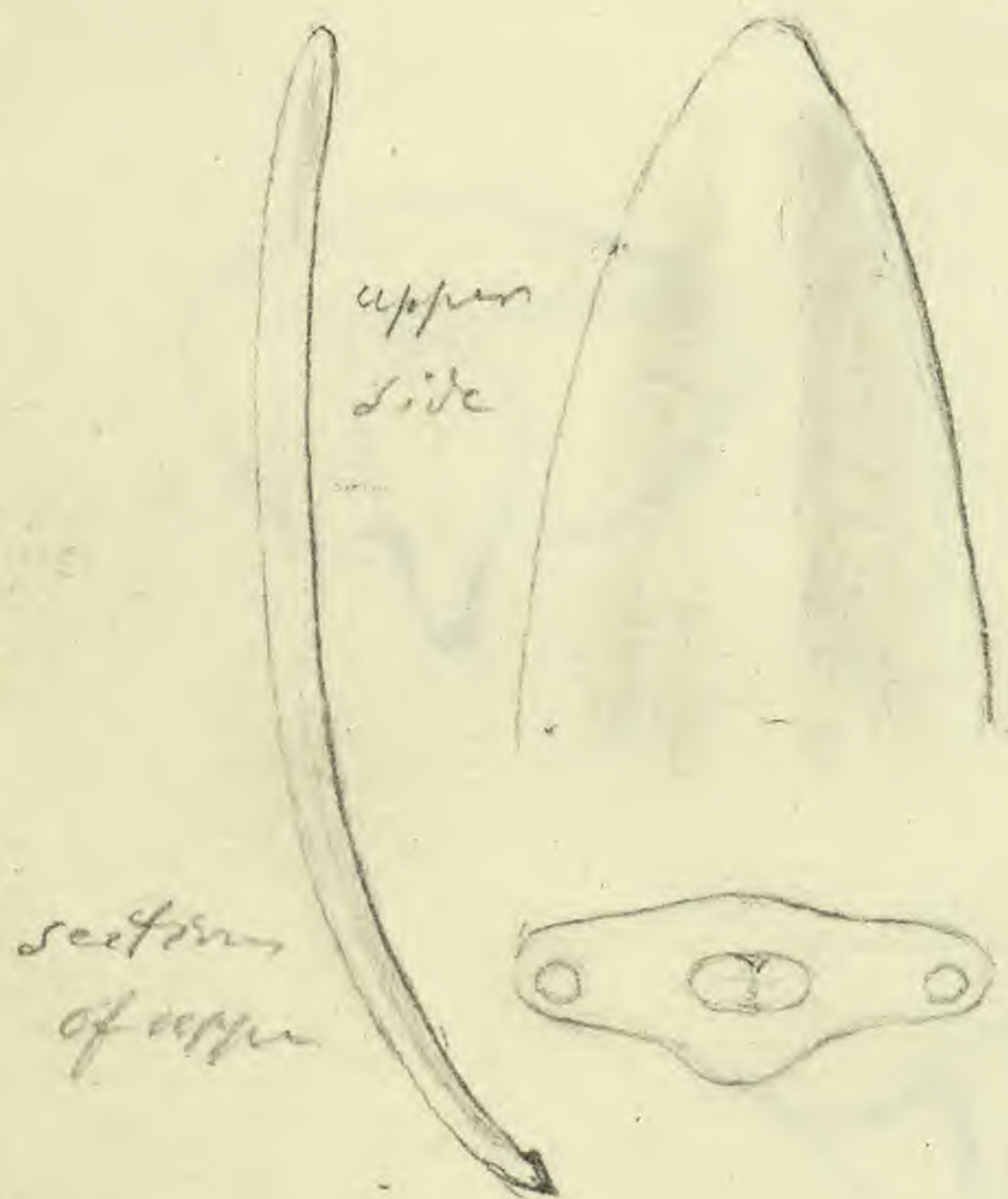
April 7 1872

Fertile Santa Fe No 828

nat size

X10

X10



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



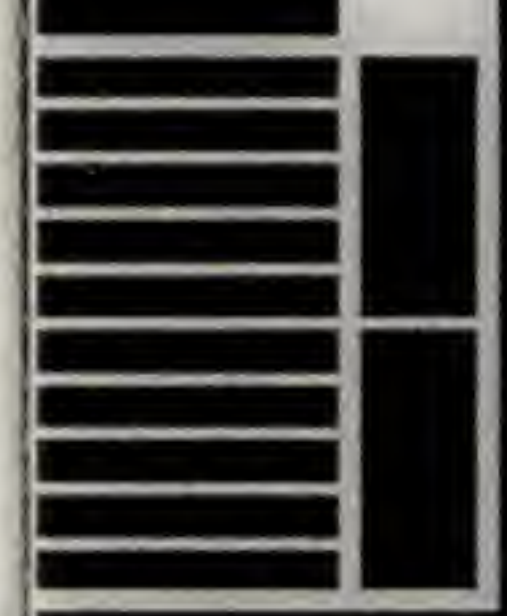
Sept 7

12608

25 x 14  
3 1/2 x 2  
The ex  
r slightly  
te  
8 x 3 1/2  
over twice  
of inner  
edge,  
pressed

PRINTED BY  
Saml West with Market  
Street

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor* !

Sept 7 1870

Santa Fe Frontier 828, 1847.



Scale  $25 \times 14$  mm  
 $= 3\frac{1}{2} : 2$

bract just reaching the exposed  
of scale, obtuse or slightly acute,  
never mucronate



$\times 2$

$8 \times 3\frac{1}{2}$

over twice as long  
as wide

carina of inner valve on  
on lateral edge, not on upper

cones acutish, not depressed or retrose

DRUGGISTS  
South-west Fifth and Market Streets  
Kansas City



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12609

CONSTANTLY ON HAND

**APOTHECARY & CHEMIST,**

Cor. 4th and Olive Sts., St. Louis.

MISSOURI BOTANICAL GARDEN

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Nov 1862



8 val



see



cm

copyright reserved

MISSOURI  
BOTANICAL  
GARDEN

MISSOURI B  
GEORGE EN



12610

CHEMIST

**ALEX. LEITCH,**  
APOTHECARY & CHEMIST,  
Cor. 4th and Olive Sts., St. Louis.

ALL THE NEW REMEDIES  
CONSTANTLY ON HAND

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



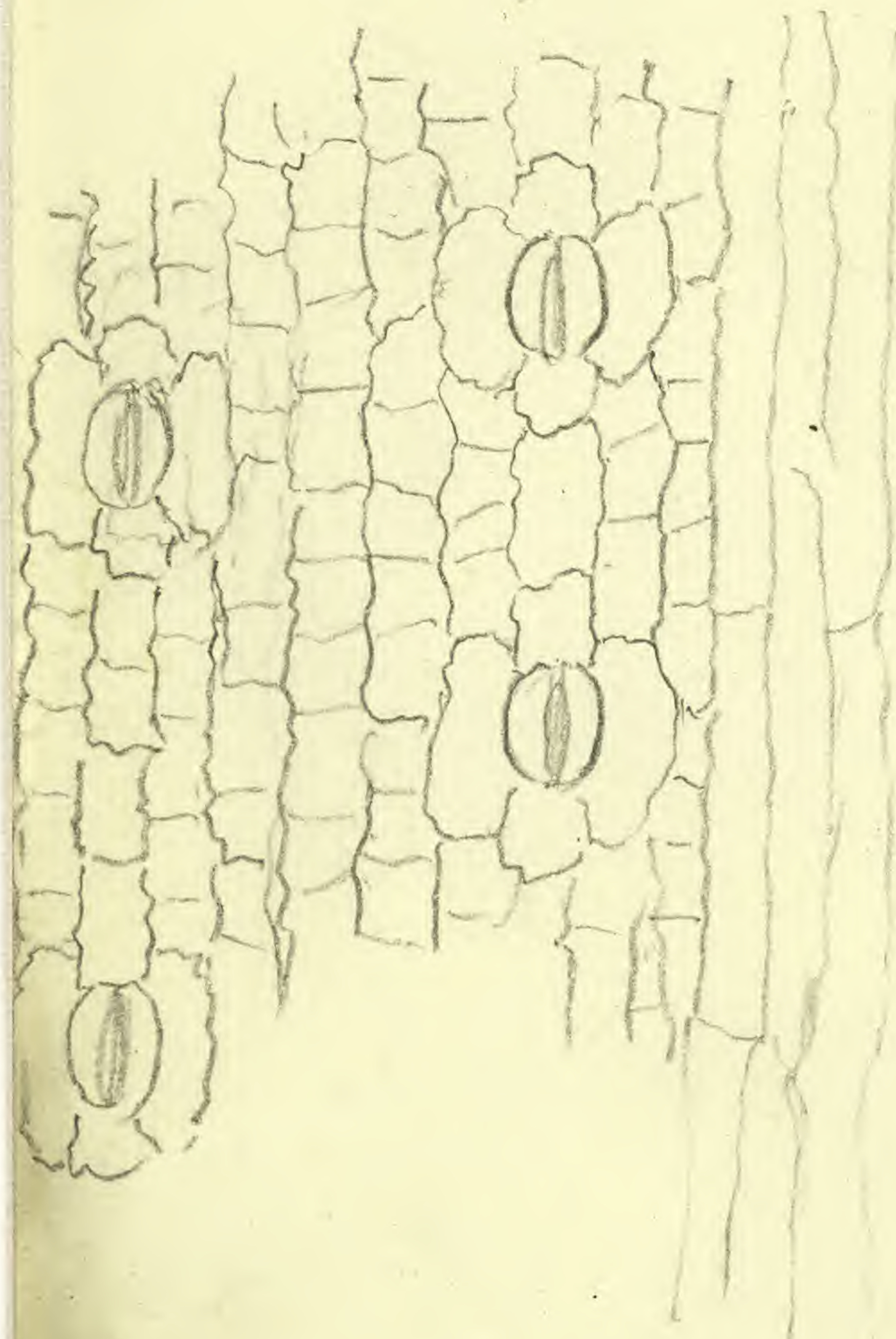
MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*

April 7 1872

Frederick, Santa Fe 228



x 280



Epidermis

of upper side  
of leaf

of under side  
of leaf

one of the large leaves of the sterile branch



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12611

Leitch & Corlies

DRUGGISTS

South-west  
Fifth and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*

Oct 24 1870

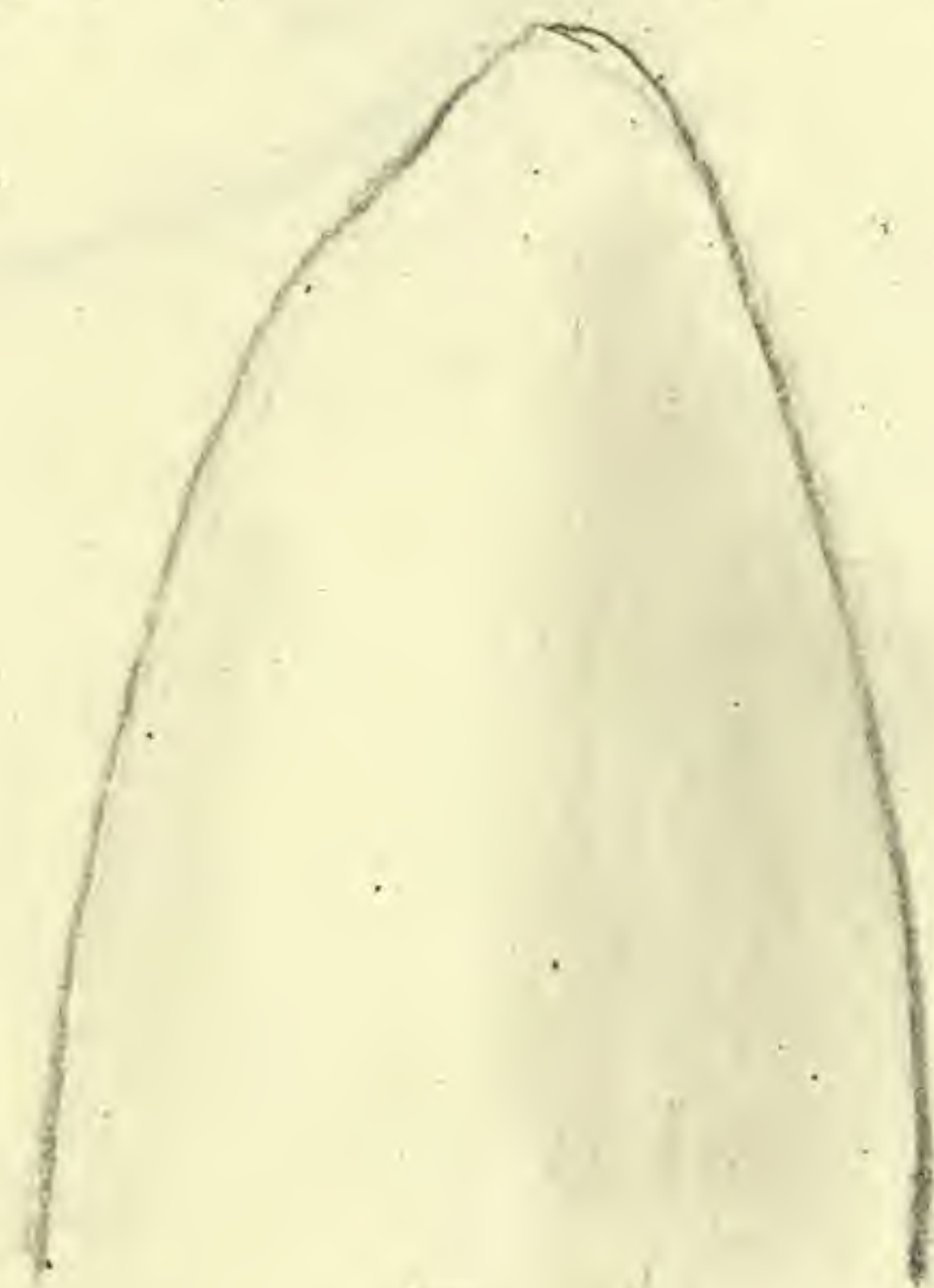
X30

*Abies*

April 12 1872

Sandia Mountain N. Mex. Dr. Bigelow

X 10



Section of leaf  
near tip



middle



near base



0  
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



Oct 24  
Bigelow

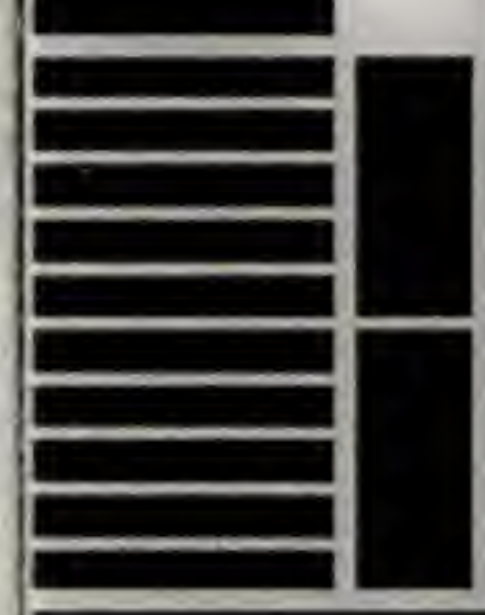
leaf

12612

DRUGGISTS

South-west  
Corner Fifth  
and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm



MISSOURI  
BOTANICAL  
GARDEN

copyright reserved

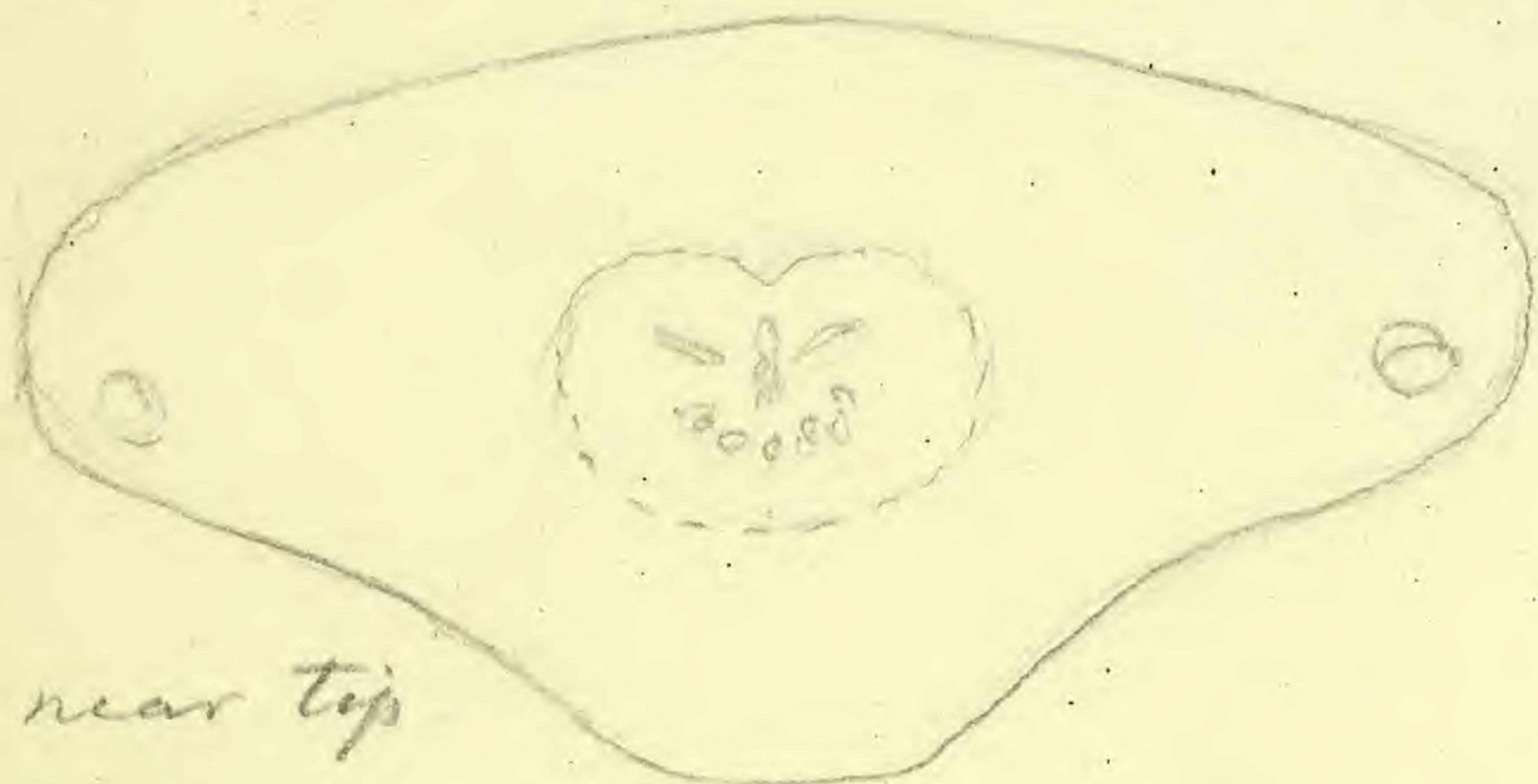


Oct 24 1870

*Abies concolor*

San Dia Mountains, Dr Bigelow

x30



near base



tip of leaf

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



12613

CHEMIST

ALEX. LEITCH,  
APOTHECARY & CHEMIST,  
Cor. 4th and Olive Sts., St. Louis.

ALL THE NEW REMEDIES  
CONSTANTLY ON HAND

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



*Abies concolor*  
Utch

Nov 1874

x10



mostly 6 Cotyl  
rarely 5 or 7  
cotyl. about  $\frac{1}{3}$  -  $\frac{1}{2}$   
the length of  
embryo



0  
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN



HENRY EHRLHARDT,  
PHARMACEUTICAL CHEMIST,

No. 301 South Fifth Street, Cor. Myrtle, ST. LOUIS.

No.

*Dr*

Date

187

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12614



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN